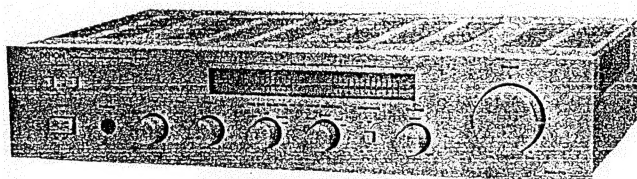


DENON

Hi-Fi Pre-Main Amplifier

SERVICE MANUAL MODEL PMA-710

SOLID STATE
PRE MAIN AMPLIFIER



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NIPPON COLUMBIA CO., LTD.

SPECIFICATIONS

POWER AMPLIFIER SECTION

Rated Output Power:	Both channel drive 20 Hz to 20 kHz 35 W + 35 W (8 ohm Load) (IHF) 1 kHz (8 ohm Load) 42 W + 42 W (DIN) 1 kHz (8 ohm Load) 40 W + 40 W (IEC) (Subject to change by temperature test)
Total Harmonic Distortion:	0.03% (20 Hz - 20 kHz at -3 dB rated output 8 ohm Load) (IHF) 0.05% (20 Hz - 20 kHz at rated output 8 ohm Load) (U.S.A.)
Intermodulation Distortion:	Below 7 kHz / 60 Hz : 1/4 0.01% (at amplitude output equivalent to rated output)
Output Band Width:	10 Hz - 40 kHz (IHF THD 0.1%)
Transmission Characteristics:	5 Hz - 150 kHz +0 dB -3 dB (at 1 W output)
Input Sensitivity:	150 mV
Input Impedance:	30 k ohm
Output Impedance:	0.16 ohm (1 kHz)
Output Terminals:	Speaker: A and B Load 8 - 16 ohm Headphone/Stereo headphone (600 mV/8 ohm)

EQUALIZER AMPLIFIER SECTION

Equalizer Amplifier Output:	Maximum Output: 10 V (at 47 k ohm Load) Rated Output: 150 mV Total harmonic wave distortion: below 0.01% (at 1 kHz, 8 V output)
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Design and specifications are subject to change without prior notice.

NOTE: The following codes correspond to the appropriate models.

E2 for Europe, EF for France, EG for Germany, EK for U.K., E3 for U.S.A., and E1 for Hong Kong, Singapore.
This Service Manual is prepared based on E2.

BLOCK DIAGRAM

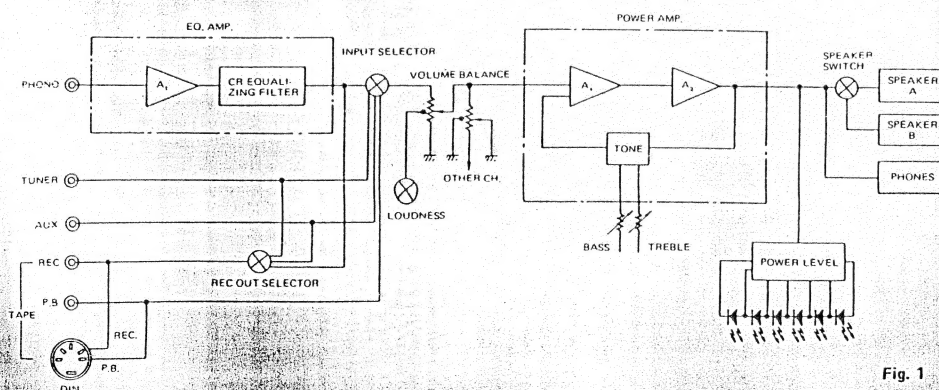


Fig. 1

Input Sensitivity/

Input Impedance:	PHONO 2.5 mV 47 k ohm TUNER 150 mV 30 k ohm AUX, TAPE 150 mV 30 k ohm
RIAA Deviation:	PHONO within ± 0.5 dB (20 Hz - 100 kHz)

OVERALL CHARACTERISTICS

SN Ratio (IHFA Network):	PHONO 72 dB (input terminals short-circuited for 2.5 mV input) TUNER, TAPE, AUX: 96 dB (input terminals short-circuited)
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Tone Control Adjustable

Range:	BASS 100 Hz \pm 10 dB TREBLE 10 kHz \pm 10 dB
Loudness Characteristics:	Low frequency 100 Hz \pm 8 dB High frequency 10 kHz \pm 6 dB
AC OUTLET:	SWITCHED x 2, 100 W (Total) UNSWITCHED x 1, 250 W

(For U.S.A., Canada and Hong Kong, Singapore)

POWER SOURCE:

Germany and France AC 220 V, 50 Hz; U.K. AC 240 V, 50 Hz; U.S.A. AC 120 V, 60 Hz; Hong Kong AC 200 V, 50 Hz (Multiple)
70 W (U.S.A.); 180 W (IEC); 70 W (Hong Kong); 200 W (U.K.)
145 VA (Canada)

POWER CONSUMPTION:

434 mm (w) x 97 mm (H) x 286 mm (D) (including rubber feet, control knobs, and terminals)

DIMENSIONS:

6.5 kg

WEIGHT:

METHOD OF ADJUSTMENTS

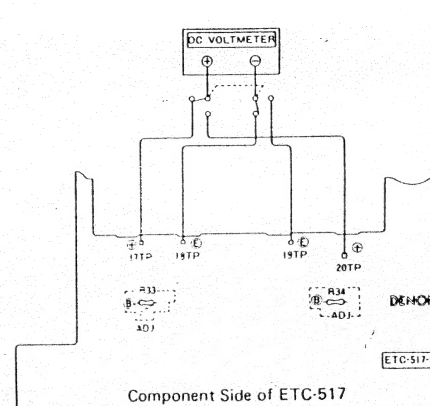


Fig. 2

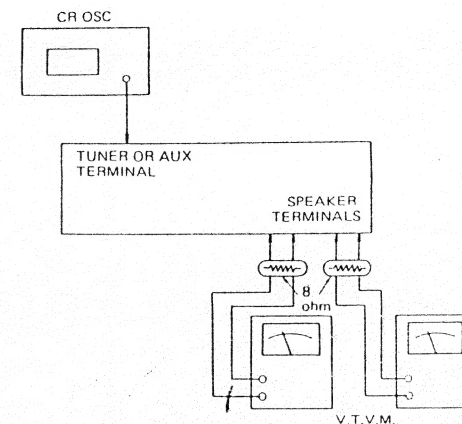


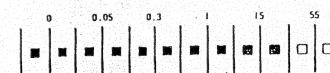
Fig. 3

IDLE CURRENT ADJUSTMENT (Fig. 2)

- Keep the unit away from direct wind blown by an air-conditioner and an electric fan, and keep the unit under normal conditions. Adjust the range of ambient temperature to 15 - 30°C.
- Set the following switches as follows:
 - POWER (power switch) to off
 - VOLUME (VOLUME CONTROL) to 0 (∞)
 - SPEAKERS (speaker terminal) to no load (speakers disconnected)
- Remove the top cover and connect a DC digital voltmeter to the test points of ETC-517 (power and control units) (between the positive terminal 17 and the negative terminal 18, and between the positive 20 and the negative terminal 19).
- Connect the power source cord to an AC outlet and turn on the power switch; read the measured value after 3 minutes or when the measured value is within a tolerance of 6.6 mV \sim 90 mV (DC), adjust the idling current manually as follows.
 - Connect a 4.7 ohm resistor to resistors R33 and 34 which are surrounded by the broken line on the printed circuit board.
 - When the voltmeter reads 6.6 mV (DC) or less under the condition of item (1), disconnect the 4.7 ohm from resistors R33 and R34.

POWER LEVEL METER ADJUSTMENT (Fig. 3)

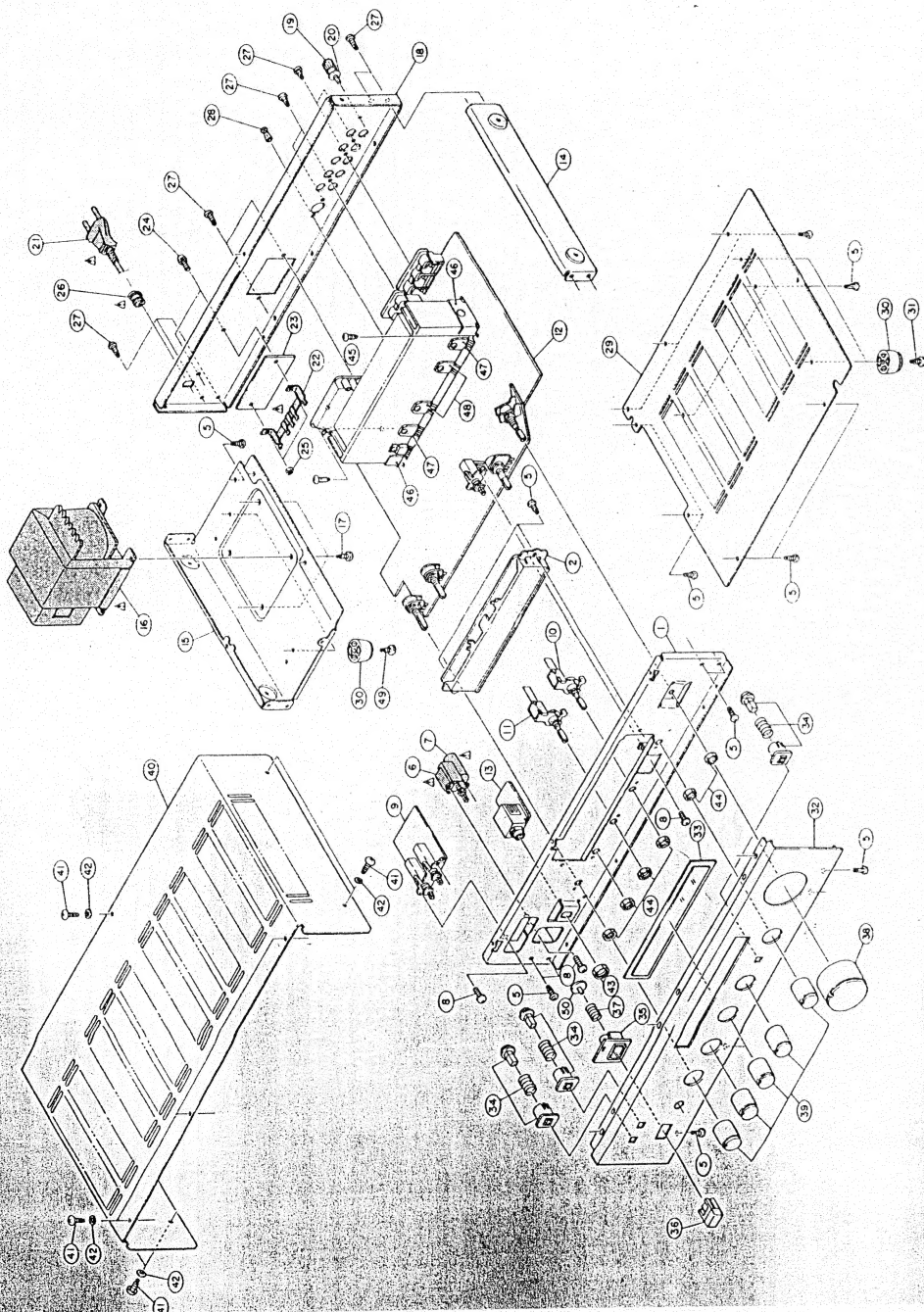
- Keep the unit away from wind blown from an air conditioner or an electric fan and set it to the normal operating mode. The ambient temperature of the tuner is 15 to 30°C.
- Set the switches as follows:
 - Turn off the power switch.
 - Turn the volume control counterclockwise to the end.
 - Connect a load of 8 ohms to the speaker terminals.
- Connect an oscillator to an input jack (AUX) and set the input selector switch to "AUX". Connect an electronic voltmeter to the speaker terminals.
- Connect the power cord to the power source and turn on the power switch. Set the volume to maximum and adjust the attenuation of the oscillator (1 kHz), so that the voltmeter reads 8 V.
- Turn semi-fixed volume VR3 in the unit so that the fifth LED (15 W), from the left, of the power level meter starts to light.
- Turn semi-fixed volume VR4 so that the fifth LED (15 W) from the right starts to light.



- Turn the volume first counterclockwise to the end and then turn it clockwise gradually so that the fifth LED of the power level meter starts to light and the electronic voltmeter at this time reads 8 ± 1 V.

EXPLODED VIEW OF CABINET AND CHASSIS

⚠ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



EXPLODED VIEW OF PARTS LIST

NOTE: 1. See addendum list below for the Parts with asterisk (*) on the Ref. No. and the other Parts not included in this list.
2. This list is prepared based on E2.

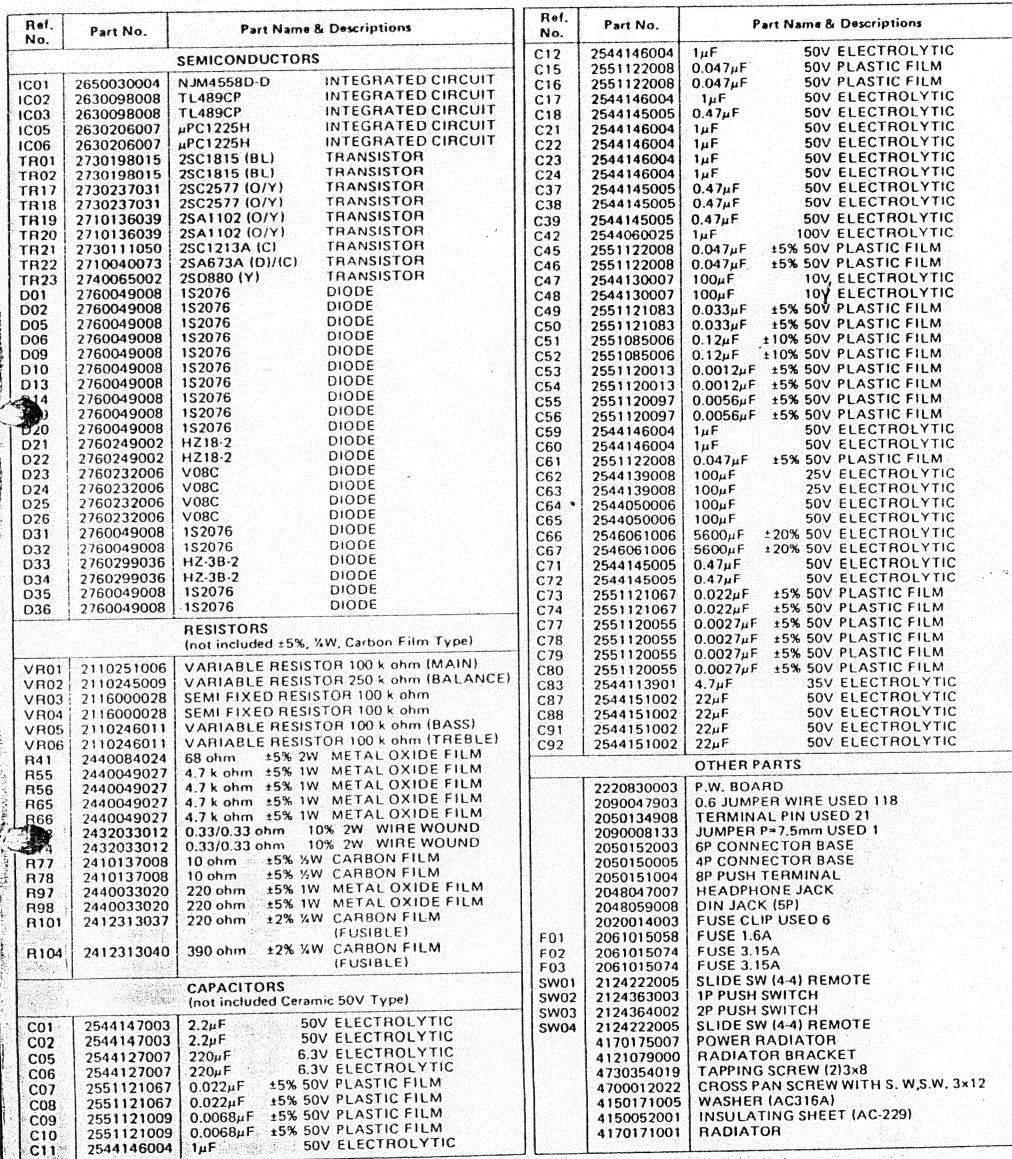
Ref. No.	Part No.	Part Name & Descriptions	Ref. No.	Part No.	Part Name & Descriptions
1	4110353009	FRONT CHASSIS ASS'Y	31	4730455031	TAPPING SCREW (2)4x10 (BLACK)
2	1460503201	METER COVER	32	1440996003	FRONT PANEL
3	3939164014	LED SLP-2678-03 (GREEN)	33	1430257008	WINDOW PLATE
*4	ETC0517-2	LED INDICATOR UNIT	34	1130306107	PUSH KNOB (LOUD) ASS'Y
5	4730354019	TAPPING SCREW (2)3x8	35	1460501009	PANEL BUSH (POWER)
6	2124154021	POWER SWITCH	36	1130171222	PUSH KNOB ASS'Y
7	2568023035	METALIZED CAPACITOR (0.047µF 250V)	37	4630220007	SPRING
8	4700009006	CROSS PAN SCREW WITH S. WASHER 3x6	38	1120265216	KNOB
*9	ETC0517-3	SPEAKER SWITCH UNIT	39	1120321008	KNOB ASS'Y (A)
10	2120170012	ROTARY REMOTE (A) Ø=310mm	40	1020111127	TOP COVER
11	2120170025	ROTARY REMOTE (B) Ø=400mm	41	4770052038	FIXING SCREW
*12	ETC0517	POWER & CONTROL UNIT	42	4410367009	WASHER
*13	ETC0517-4	HEADPHONE UNIT	43	—	NUT Ø12 (SPARE)
14	4121082000	SIDE CHASSIS	44	—	NUT Ø7 (SPARE)
15	4121083106	TRANS CHASSIS	45	4170175007	POWER RADIATOR (ETC-517)
16	2335356003	POWER TRANS.	46	4121079000	RADIATOR BRACKET (ETC-517)
17	4734454012	TAPPING SCREW (TRUS) 4x8	47	2730237031	TRANSISTOR 2SC2577(I)/Y (ETC-517)
*18	1050484002	BACK PANEL	48	2710136039	TRANSISTOR 2SA1102(I)/Y (ETC-517)
19	2050071016	TERMINAL ASS'Y	49	4730454016	TAPPING SCREW (2)4x8
20	4770018001	WASHER (P-87)	50	1190014002	STOPPER
21	2062002031	AC CORD	PACKING & ACCESSORIES (not included EXPLODED VIEW)		
22	2050088004	7-WIRE TERMINAL			
*23	4150088004	INSULATING SHEET			
*24	4700042005	CROSS PAN SCREW WITH S. WASHER 3x8 (BLACK)			
*25	4756006008	NUT Ø3	a	5050075006	CABINET COVER
26	4350020005	CORD BUSH	b	5030330004	CUSHION
27	4730354035	TAPPING SCREW (2)3x8	c	5010729062	CARTON CASE
28	4770096007	PUSH RIVET	d	5111018009	INST. MANUAL
29	1050485001	BOTTOM COVER			
30	1048001002	FOOT			

ADDENDUM LIST

Ref. No.	Part Name & Descriptions	EG for Germany	EK for U.K.	Part No. E3 for U.S.A.	E1 for Hong Kong, Singapore
4	LED INDICATOR UNIT	ETC0517-2	ETC0517B-2		ETC0517D-2
6	POWER SWITCH	2124154021	2124154021		2124154021
7	CAPACITOR	2568023035	2568023035		2568023035
12	SPEAKER SWITCH UNIT	(0.047µF 250V)	(0.047µF 250V)		(0.047µF 250V)
13	POWER & CONTROL UNIT	ETC0517-3	ETC0517B-3		ETC0517D-3
14	HEADPHONE UNIT	ETC0517-4	ETC0517B-4		ETC0517D-4
16	POWER TRANS.	2335356003	2335356003		2335356003
18	BACK PANEL	1050484002	1050484002		1050491008
21	AC CORD	2062002031	2062002031		2006031026
22	7-WIRE TERMINAL	2050088004	2050088004		
23	INSULATING SHEET	4150088004	4150088004		
24	CROSS PAN SCREW WITH S. WASHER 3x8 (BLACK)	4700042005	4700042005		
25	NUT Ø3	4756006008	4756006008		
26	CORD BUSH	4350020005	MD-2982H		
27	TAPPING SCREW (2)3x8				MD3802
28	PUSH RIVET				2120186006
29	BOTTOM COVER				2120186006
30	FOOT				4711303034
PACKING & ACCESSORIES (not included EXPLODED VIEW)					
e	CAUTION SHEET	—	5130364006	—	—
f	IMPORTANT LABEL	—	5130372001	—	—
g	GUARANTEE CARD	—	5150230000	—	—

POWER & CONTROL UNIT

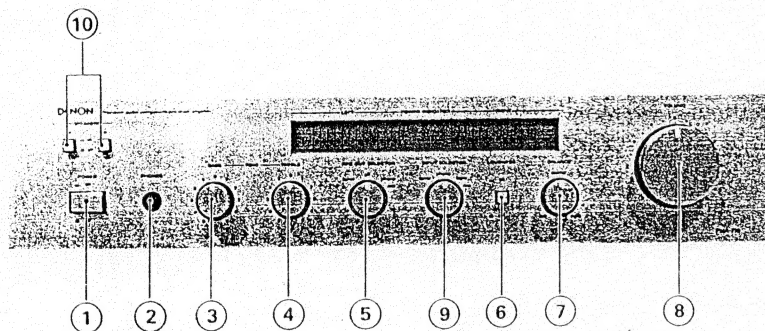
ETC-517 for E2, 517B for E.K



ETC-517D PARTS LIST for E1

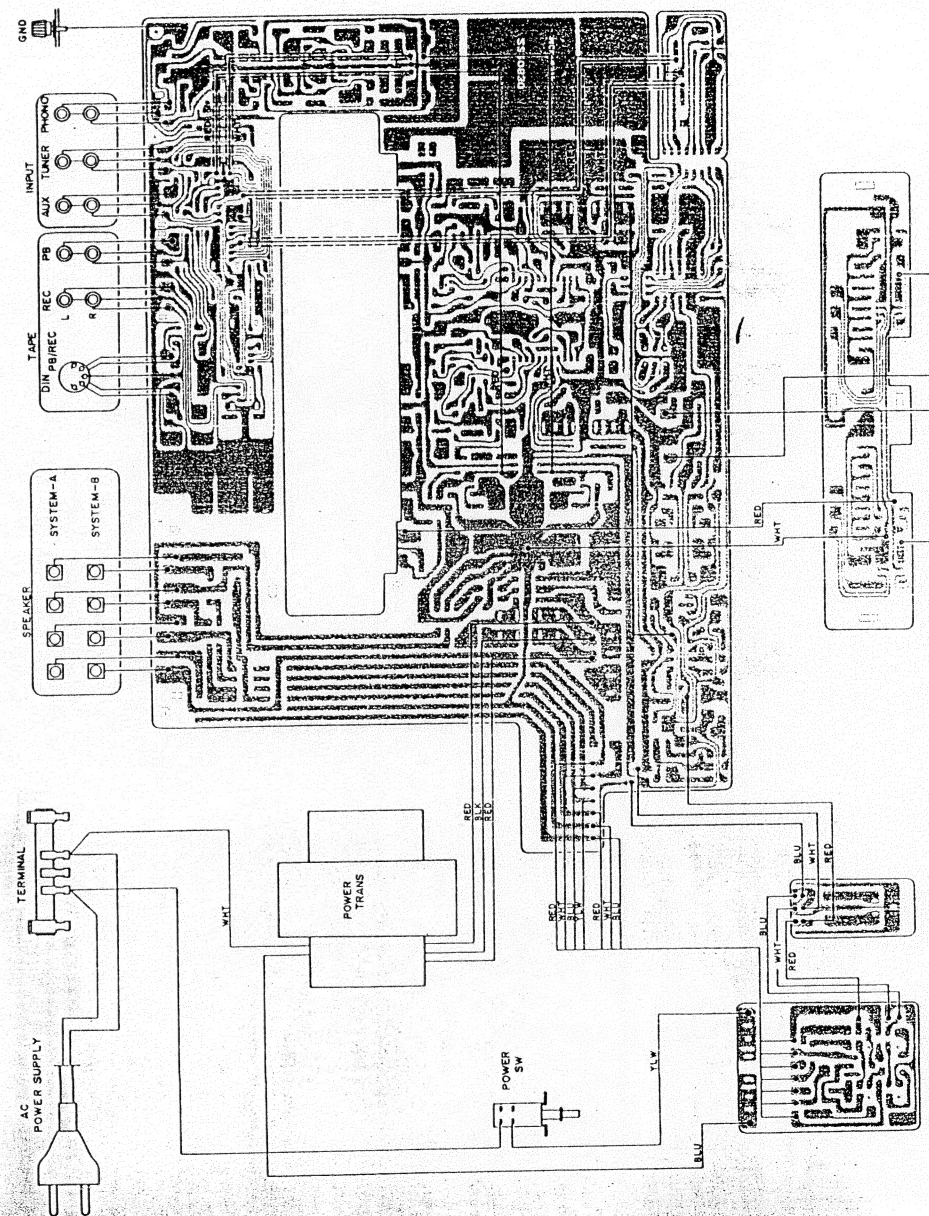
Ref. No.	Part No.	Part Name & Descriptions
	EP 5667H11	TERMINAL (WRAPPING PIN) USED (ADD)
	EP 5870	FUSE HOLDER (ADD)
	2061025080	FUSE TLC 315A (ADD)
	2033909008	AC OUTLET (ADD)
	5130159143	FUSE LABEL (ADD)

DESIGNATION AND FUNCTIONS OF FRONT PANEL CONTROLS



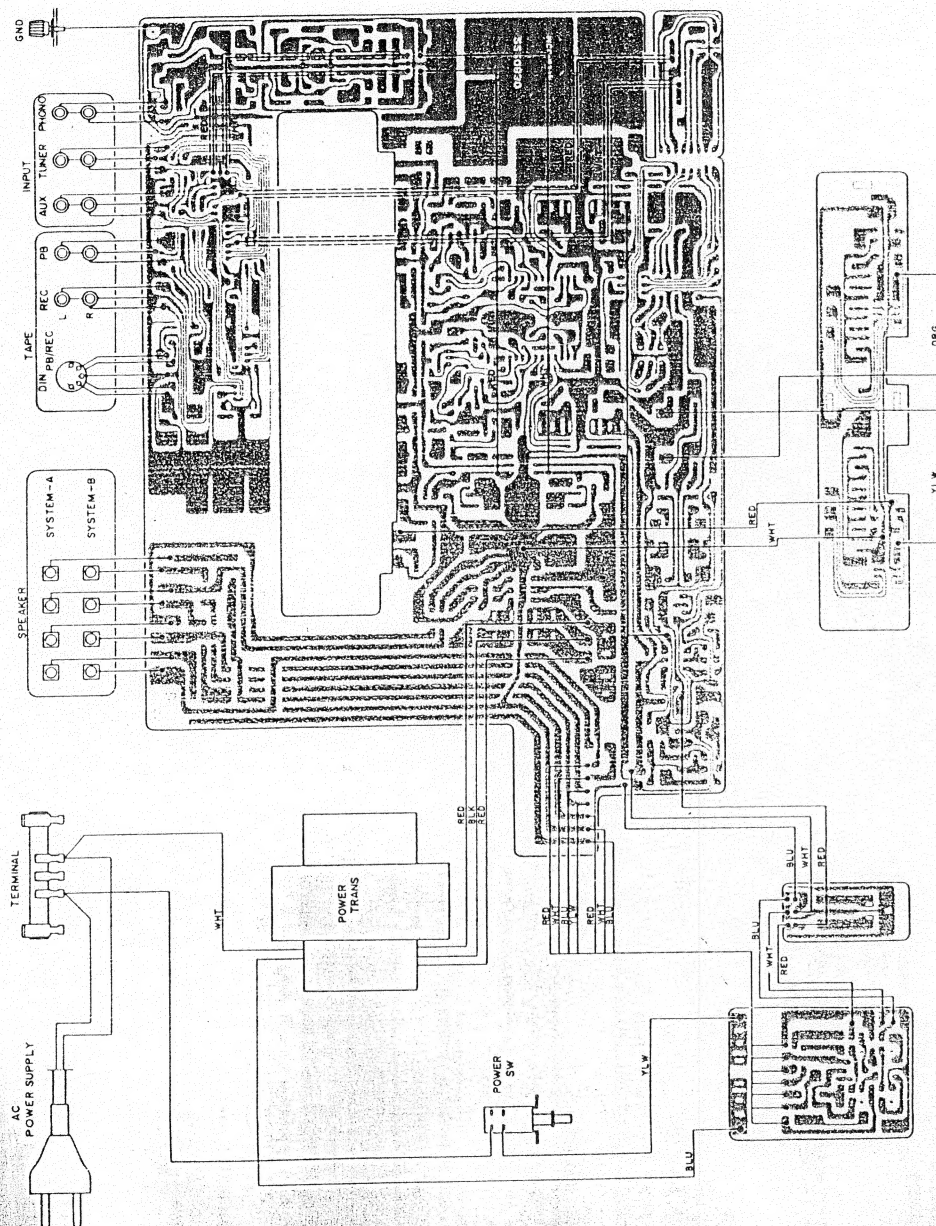
- ① POWER (Power On-Off Switch)
- ② Phones (Headphone Jack)
- ③ BASS (Bass Control)
- ④ TREBLE (Treble Control)
- ⑤ RECOUT SELECTOR (REC OUT Selector Switch)
- ⑥ LOUDNESS (Loudness Switch)
- ⑦ BALANCE (Balance Control)
- ⑧ VOLUME (Volume Control)
- ⑨ INPUT CHANGE-OVER SWITCH
- ⑩ SPEAKERS (Speaker Changeover Switch)

CONNECTION DIAGRAM



DENON

CONNECTION DIAGRAM



NIPPON COLUMBIA CO., LTD.
 No. 14-14, 4-CHOME AKASAKA,
 MINATO-KU, TOKYO 107, JAPAN
 TEL: 03-584-8111
 TLX: JAPANOLA J22591
 CABLE: NIPPONCOLUMBIA TOKYO

WIRING DIAGRAM

⚠ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.

